Before the

Federal Communications Commission

Washington, D.C. 20554

In the Matter of Rules for High Definition Television Broadcasting (Digital TV)	MM Docket No. 87-268 FCC 96-207 Reply Comment by Peter F. McCloskey and F. Jack Pluckhahn (Aug. 12, 1996)

Reply Comment

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Summary

The commenters make many cogent points; I find much to agree with and applaud. I disagree strongly on only one issue: the need for EMI immunity standards for home TV receiving equipment. I'll cover that first.

Receiver performance standards

EMI immunity

The commenters state [executive summary]:

> "The Commission should ... reject suggestions that it impose mandatory performance or reception standards on digital television receivers. The dynamic consumer electronics marketplace will ensure that digital sets display the same high level of performance that consumers have come to expect in their NTSC receivers."

Similar words appear on page 21.

The offhand assertion that consumers get a high level of performance from their NTSC receivers cannot be allowed to pass unchallenged. Performance may be adequate in most areas of receiver operation, but EMI immunity is one glaring exception. The Commission clearly doesn't think it's adequate; I spent an hour on the phone trying to reach a staff member who could update me on the state of the TVI situation, and could get nothing but a prerecorded announcement advising anyone with an interference problem to contact the set's manufacturer. The message is unmistakeable: the FCC continues to get TVI complaints all the time, and is no longer willing to entertain the hypothesis that the cause could be anywhere but in the receiver.

Hams generally subscribe to that view. Home television receivers have been the bane of all the communication services for the whole 50 years that the TV broadcasting

service has existed, because of their inadequate rejection of out-of-band signals.

Market forces are inherently helpless to alleviate this problem. If the electromagnetic environment were uniform in space and time, the shopper would detect a badly designed set in the showroom and not buy it. But the environment isn't uniform. The set is as likely as not to be long out of warranty by the time the owner installs CB equipment, or a ham with a kilowatt on 10 meters moves in next door.

Because of TV sets that should never have reached the production line, owners have been treated to herringbone patterns and half of a transpacific conversation. Hams have been sued, vandalized, threatened with bodily harm, and harassed by local government -- sometimes when the interfering signal was actually coming from another service.

The Amateur service will never stop hammering on this issue until the Commission exercises the authority which Congress granted in order to deal with this problem.

I'm the first to agree that government should regulate only where the market cannot. But it isn't through any spirit of unthinking overregulation that European governments have taken to setting mandatory EMI immunity standards for consumer electronic equipment. Nothing else got the job done.

EMI immunity regulation can be approached in a spirit of minimalism, so as to minimize the cost to all concerned. Most manufacturers could be allowed to do their own design verification. Only those who accumulate a history of selling noncompliant products should be required to have their prototypes certified by commercial RF labs; this would protect reputable manufacturers from unfair competition. Nor do immunity standards have to impose a significant workload on the Commission or its staff. Since European standards agencies have already researched the problem and published internationally recognized standards documents, the U.S. need not issue its own. Similarly, the FCC doesn't need to involve itself in accrediting commercial laboratories, because there are international organizations already doing that.

Now, why incorporate a rulemaking action on receiver EMI immunity into the issuance of a transmission standard, which is obviously a separate matter? For the most practical of reasons: the impending replacement of the nation's whole inventory of TV equipment is a once-in-a-lifetime opportunity to lance this long-festering boil.

Sensitivity

The commenters imply that the Commission need not directly regulate receiver noise figure. They're entirely correct. The Commission can, if it wishes, encourage the manufacture of modern receivers by calculating licensed transmitter power upon the assumption that there is a state-of-the-art front end, and no line loss between the antenna and the first stage. (In other words, a decent preamp is built right into the driven element. I'm not suggesting Heliax in every household.) Deaf receivers would then

find few takers.

Similarly, sharp-skirted IF filters could be encouraged by abolishing adjacent channel protection. Actually, the proposed adjacent-channel simulcasting just about does that. If it also results in stations at moderate distances from each other operating on neighboring channels, the interfering signal on the adjacent channel could be much stronger than the desired signal from some distance away. Receivers with marginal selectivity would then be at a disadvantage in many markets.

Adoption of a single standard document, and adoption of the complete standard

As a prospective buyer of DTV receiving equipment, I completely endorse the views presented. If I thought there was any prospect that multiple or incomplete standards would lead to competing incompatible systems and an eventual shakeout, I would certainly wait for the dust to settle before spending money on new equipment. The commenters' vision of depressed sales is no idle speculation -- Mrs. Carroll and I are nursing along a used-up NTSC set right now, pending availability of affordable DTV equipment.

Prompt release of the present standard

I absolutely agree.

> "Prompt action by the Commission will help establish the ATSC DTV Standard as the global standard for digital broadcasting..."

Well, I hope so, but I suspect that opportunity was thrown away years ago. While Americans argued, Europeans acted. An obsolete standard with unequal-sided pixels has gotten a foothold. The real danger now is that any further delay may lose the North American market too, and with it the last hope of deploying a modern DTV system in our lifetime. The theoretical possibility of any marginal improvements in the standard at this late date isn't worth that risk. Any remaining open issues should be argued after release.

I would add that the EMI immunity standards I urged in my comment of June 29 are no cause for delay either, because they were published long ago and are available from many distributors. Citing them in the Rules would be the work of minutes.

Longevity of the standard

The points raised are valid. At the same time, it would be rash indeed to assume that no significant improvements in video encoding or data modulation will occur in the next decades. That's why I suggested that supplemental standards should be developed and published as soon as possible, to provide a path for orderly introduction of new technology as it develops. Standards for software upgrading and for interfacing to external hardware are both desirable. They would protect the consumer's investment, and at the same time reduce opposition to additional transmission

options. Furthermore, the specific problem of cable service interfacing described on page 8 is basically the same technical problem as external add-ons in general.

These issues perhaps don't have to be resolved immediately, but they should receive early and expeditious attention. Otherwise, an entire generation of equipment will be built without hooks for upgrading.

"The Commission should encourage industry to develop answers to interoperability issues."... Yes, as vigorously as possible.

Having considered the commenters' remarks, I would revise the suggestion made in my earlier comment, and concur that the present standard should be issued without setting a date for permitting unspecified transmission formats. Instead, the Commission should take up the question of permitting other transmission formats only after the industry has agreed on equipment standards that permit field upgrades, and receiving systems implementing those standards are in the hands of the public in large numbers.

Aspect ratio

I find nothing to disagree with in the comment. On the other hand, I don't see this as a vital issue. As I said in my earlier comment, we should expect that windowing will be a built-in feature of DTV receiving equipment. If an image in 2:1 ratio is delivered to a display unit optimized for 16:9, the viewer can choose to leave some of the screen area unused in order to see the whole image, or crop it and use the whole screen. Given the valid reasons cited for making 16:9 primary, though, anyone transmitting 2:1 material simply won't find receiving equipment optimized for it. So ratios higher than 16:9 might be permitted; they just shouldn't be encouraged.

Conclusion

I agree with the EIA and ATSC on all but one point. By the offhand manner in which the commenters touch on the performance of existing TV receivers, it's not certain that there is a serious disagreement of fact there either. While I urge that long-accepted international EMI immunity standards be made mandatory for the manufacture and importation of home DTV receiving equipment, this need not and must not delay the adoption of the ATSC DTV standard.

As required, a copy of this reply comment has been mailed to the attorneys for the commenters.

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Sept. 7, 1996